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10/685,287	10/14/2003	Bradley G. Culter	100203448-2	5828

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EXAMINER	
YIGDALL, MICHAEL J	
ART UNIT	PAPER NUMBER
2192	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	**Application No.** 10/685,287	**Applicant(s)** CULTER, BRADLEY G.
	Examiner Michael J. Yigdall	**Art Unit** 2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *10/14/03*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-34 are pending. A priority date of June 30, 2003 is considered.

Drawings

2. FIGURE 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because the application number provided for "SYSTEM AND METHOD FOR DEVELOPMENT OF FIRMWARE" (page 1, paragraph [0001]) is not correct. Appropriate correction is required.

4. The use of the trademarks "ITANIUM" (e.g., page 1, paragraph [0003]) and "WINDOWS" (e.g., page 4, paragraph [0013]) has been noted in this application. All trademarks, including those noted here, should be capitalized wherever they appear and should be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2-6, 8, 10-12, 14-20, 23-26 and 28-34 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pub. No. 2004/0128568 to O'Shea ("O'Shea").

With respect to claim 1, O'Shea discloses a method for changing control of a processor that is in an active state under the control of an operating system to a borrowed state wherein the processor is under control of firmware (see, for example, paragraph [0014], lines 1-6), comprising:

sending a request for a change in control to the operating system (see, for example, paragraph [0041], lines 1-11, which shows signaling a request to change control from the operating system to the firmware);

deciding, by the operating system, whether to grant the request (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to grant the request);

placing the processor in a transitional state that is different from the active state, if the request is granted (see, for example, paragraph [0043], lines 14-19, which shows granting the request and placing the processor in another state); and

sending, by the operating system, an interrupt signal to move the processor from the transitional state into the borrowed state (see, for example, paragraph [0038], lines 8-24, which shows sending an interrupt signal to move the processor to firmware control).

With respect to claim 2, the rejection of claim 1 is incorporated, and O'Shea further discloses:

maintaining the processor in the active state, if the request is denied (see, for example, paragraph [0043], lines 7-14, which shows denying the request and maintaining operating system control of the processor).

With respect to claim 3, the rejection of claim 2 is incorporated, and O'Shea further discloses:

re-sending the request, if the request is denied (see, for example, paragraph [0043], lines 7-14, which shows that the request is denied for only one instance, and paragraph [0042], lines 1-7, which shows that there are repeated instances in which the request is sent or re-sent).

With respect to claim 4, the rejection of claim 1 is incorporated, and O'Shea further discloses:

operating the processor in the borrowed state until completion of a task (see, for example, paragraph [0026], lines 6-17, which shows operating the processor under firmware control to complete a task);

placing the processor in another transitional state (see, for example, paragraph [0026], lines 17-25, which shows completing the task and placing the processing in another state); and

returning the processor to the active state (see, for example, paragraph [0026], lines 17-25, which shows returning the processor to operating system control).

With respect to claim 5, the rejection of claim 4 is incorporated, and O'Shea further discloses that the task is handling a problem that cannot be handled by the operating system (see, for example, paragraph [0027], lines 22-30, which shows that the task in unrelated to the operating system).

With respect to claim 6, the rejection of claim 1 is incorporated, and O'Shea further discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3, which shows that there is a plurality of processors).

With respect to claim 8, the rejection of claim 1 is incorporated, and O'Shea further discloses that a duration of the borrowed state is unbounded (see, for example, paragraph [0034], lines 10-20, which shows that the duration of firmware control is unbounded).

With respect to claim 10, the rejection of claim 1 is incorporated, and O'Shea further discloses:

invoking the request by one of the firmware and an application (see, for example, paragraph [0030], lines 1-9, which shows a user application invoking the request).

With respect to claim 11, the rejection of claim 1 is incorporated, and O'Shea further discloses:

using a general purpose event to cause formation of the request (see, for example, paragraph [0033], lines 13-22, which shows using a general purpose event such as a flag to form the request).

With respect to claim 12, the rejection of claim 1 is incorporated, and O'Shea further discloses:

placing the operating system into hibernation while the processor is in the borrowed state (see, for example, paragraph [0031], lines 4-15, which shows placing the operation system into a lower power state that constitutes hibernation).

With respect to claim 14, the rejection of claim 1 is incorporated, and O'Shea further discloses that the deciding comprises:

deciding, by the operating system without involvement of the firmware, whether to grant the request (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to grant the request).

With respect to claim 15, O'Shea discloses a computer system comprising:

a processor for executing code (see, for example, paragraph [0016], lines 1-3, which shows a processor);

an operating system that has control of the processor during an active state (see, for example, paragraph [0014], lines 1-6, which shows an operating system that has control of the processor); and

a firmware layer that has control of the processor during a borrowed state (see, for example, paragraph [0014], lines 1-6, which shows firmware that has control of the processor);

wherein the operating system decides whether to place the processor in the borrowed state and sends an interrupt signal to move the processor into the borrowed state (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to place the processor under firmware control, and paragraph [0038], lines 8-24, which shows sending an interrupt signal to move the processor to firmware control).

With respect to claim 16, the rejection of claim 15 is incorporated, and O'Shea further discloses that if the operating system decides not to place the processor in the borrowed state, the operating system maintains control of the processor (see, for example, paragraph [0043], lines 7-14, which shows the operating system maintaining control of the processor).

With respect to claim 17, the rejection of claim 15 is incorporated, and O'Shea further discloses that the firmware maintains control of the processor in the borrowed state until completion of a task, and then returns control of the processor to the operating system (see, for example, paragraph [0026], lines 6-25, which shows the firmware maintaining control of the processor to complete a task and then returning control to the operating system).

With respect to claim 18, the rejection of claim 17 is incorporated, and O'Shea further discloses that the task involves a problem that cannot be handled by the operating system (see, for example, paragraph [0027], lines 22-30, which shows that the task in unrelated to the operating system).

With respect to claim 19, the rejection of claim 15 is incorporated, and O'Shea further discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3, which shows that there is a plurality of processors).

With respect to claim 20, the rejection of claim 15 is incorporated, and O'Shea further disclose:

a requesting entity invokes a request that the processor be placed in the borrowed state (see, for example, paragraph [0041], lines 1-11, which shows a requesting entity signaling a request to place the processor under firmware control).

With respect to claim 23, the rejection of claim 20 is incorporated, and O'Shea further discloses that the requesting entity is one of:

the firmware, an application, and platform hardware (see, for example, paragraph [0030], lines 1-9, which shows a user application invoking the request).

With respect to claim 24, the rejection of claim 20 is incorporated, and O'Shea further discloses that a general purpose event is used to cause formation of the request (see, for example, paragraph [0033], lines 13-22, which shows using a general purpose event such as a flag to form the request).

With respect to claim 25, the rejection of claim 15 is incorporated, and O'Shea further discloses that a duration of the borrowed state is unbounded (see, for example, paragraph [0034], lines 10-20, which shows that the duration of firmware control is unbounded).

With respect to claim 26, the rejection of claim 15 is incorporated, and O'Shea further discloses that the operating system is placed into hibernation while the processor is in the borrowed state (see, for example, paragraph [0031], lines 4-15, which shows placing the operation system into a lower power state that constitutes hibernation).

With respect to claim 28, the rejection of claim 15 is incorporated, and O'Shea further discloses that the operating system decides without involvement of the firmware whether to place the processor in the borrowed state (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to place the processor under firmware control).

With respect to claim 29, the rejection of claim 15 is incorporated, and O'Shea further discloses that the operating system acts as a proxy to deliver a message to the firmware layer (see, for example, paragraph [0037], lines 1-11, which shows that the operating system delivers a message to the firmware).

With respect to claim 30, the rejection of claim 15 is incorporated, and O'Shea further discloses that a modification of the firmware does not require a modification to the operating system (see, for example, paragraph [0032], lines 30-36, which shows that the firmware and operating system are independent).

With respect to claim 31, O'Shea discloses a computer system that has a processor for executing code (see, for example, paragraph [0016], lines 1-3, which shows a processor), an operating system that has control of the processor during an active state (see, for example, paragraph [0014], lines 1-6, which shows an operating system that has control of the processor); and

a firmware layer that has control of the processor during a borrowed state (see, for example, paragraph [0014], lines 1-6, which shows firmware that has control of the processor), the system comprising:

means for forming a request to change control of the processor from the active state to a borrowed state (see, for example, paragraph [0041], lines 1-11, which shows signaling a request to change control from the operating system to the firmware);

means, operative by the operating system, for deciding whether to grant the request (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to grant the request);

means for moving the processor from the active state to the borrowed state (see, for example, paragraph [0038], lines 8-24, which shows moving the processor to firmware control).

With respect to claim 32, the rejection of claim 31 is incorporated, and O'Shea further discloses:

means for returning the processor to the active state upon completion of a task (see, for example, paragraph [0026], lines 17-25, which shows returning the processor to operating system control after completing a task).

With respect to claim 33, O'Shea discloses a computer readable medium having computer program logic recorded thereon for changing control of a processor that is in an active state under the control of an operating system to a borrowed state wherein the processor is under control of firmware (see, for example, paragraph [0014], lines 1-6), comprising:

logic for forming a request for a change in control to the operating system (see, for example, paragraph [0041], lines 1-11, which shows signaling a request to change control from the operating system to the firmware);

logic for deciding, by the operating system, whether to grant the request (see, for example, paragraph [0043], lines 1-19, which shows the operating system deciding whether to grant the request);

logic for placing the processor in a transitional state that is different from the active state, if the request is granted (see, for example, paragraph [0043], lines 14-19, which shows granting the request and placing the processor in another state); and

logic for moving the processor from the transitional state into the borrowed state (see, for example, paragraph [0038], lines 8-24, which shows moving the processor to firmware control).

With respect to claim 34, the rejection of claim 33 is incorporated, and O'Shea further discloses:

logic for returning the processor to the active state upon completion of a task (see, for example, paragraph [0026], lines 17-25, which shows returning the processor to operating system control after completing a task).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 7, 9, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Shea, as applied to claims 1, 6 and 20 above, respectively, in view of "Advanced Configuration and Power Interface Specification" (recorded on IDS, "ACPI").

With respect to claim 7, the rejection of claim 6 is incorporated. O'Shea discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3), but does not expressly disclose that the request specifies the processor.

However, O'Shea further discloses that the mechanism for signaling the request is complaint with the Advanced Configuration and Power Interface (ACPI) specification (see, for example, paragraph [0046], lines 1-14). The ACPI specification teaches such a signaling mechanism in terms of a Notify operator (see, for example, page 143, section 5.6.3). The specification further teaches that the Notify operator specifies the processor (see, for example, page 379, section 16.2.3.4.1.9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the request specifies the processor, as the ACPI specification suggests. It would have been obvious because the processor is one processor of a plurality of processors, and one of ordinary skill in the art would have been motivated to specify of which processor to change control.

With respect to claim 9, the rejection of claim 1 is incorporated. O'Shea discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3), but does not expressly disclose that the request is an notify command referencing the processor.

However, O'Shea further discloses that the mechanism for signaling the request is complaint with the Advanced Configuration and Power Interface (ACPI) specification (see, for example, paragraph [0046], lines 1-14). The ACPI specification teaches such a signaling mechanism in terms of a Notify operator or command (see, for example, page 143, section 5.6.3). The specification further teaches that the Notify operator or command references the processor (see, for example, page 379, section 16.2.3.4.1.9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the request is an notify command referencing the processor, as the ACPI specification suggests. It would have been obvious because the processor is one processor of a plurality of processors, and one of ordinary skill in the art would have been motivated to specify of which processor to change control.

With respect to claim 21, the rejection of claim 20 is incorporated, and O'Shea further discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3, which shows that there is a plurality of processors). O'Shea does not expressly discloses that the request specifies the processor.

However, O'Shea further discloses that the mechanism for signaling the request is complaint with the Advanced Configuration and Power Interface (ACPI) specification (see, for example, paragraph [0046], lines 1-14). The ACPI specification teaches such a signaling mechanism in terms of a Notify operator (see, for example, page 143, section 5.6.3). The specification further teaches that the Notify operator specifies the processor (see, for example, page 379, section 16.2.3.4.1.9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the request specifies the processor, as the ACPI specification suggests. It would have been obvious because the processor is one processor of a plurality of processors, and one of ordinary skill in the art would have been motivated to specify which processor to place in the borrowed state.

With respect to claim 22, the rejection of claim 20 is incorporated. O'Shea discloses that the processor is one processor of a plurality of processors (see, for example, paragraph [0016], lines 1-3), but does not expressly disclose that the request is an notify command referencing the processor.

However, O'Shea further discloses that the mechanism for signaling the request is complaint with the Advanced Configuration and Power Interface (ACPI) specification (see, for example, paragraph [0046], lines 1-14). The ACPI specification teaches such a signaling mechanism in terms of a Notify operator or command (see, for example, page 143, section 5.6.3). The specification further teaches that the Notify operator or command references the processor (see, for example, page 379, section 16.2.3.4.1.9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the request is an notify command referencing the processor, as the ACPI specification suggests. It would have been obvious because the processor is one processor of a plurality of processors, and one of ordinary skill in the art would have been motivated to specify which processor to place in the borrowed state.

9. Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Shea, as applied to claims 1 and 15 above, respectively, in view of "Itanium Processor Family System Abstraction Layer Specification" (recorded on IDS, "SAL").

With respect to claim 13, the rejection of claim 1 is incorporated. O'Shea is silent as whether the processor is an Itanium Processor Family chip, and the firmware is system abstraction layer firmware.

However, O'Shea further discloses that the firmware performs tasks related to setup, maintenance and testing, among others (see, for example, paragraph [0025], lines 9-11). Likewise, the SAL specification teaches that the system abstraction layer firmware of an Itanium Processor Family chip performs tasks related to initialization, configuration and testing, among others (see, for example, page 1-4, section 1.3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the processor is an Itanium Processor Family chip, and the firmware is system abstraction layer firmware, as the SAL specification suggests. One of ordinary skill in the art would have been motivated to provide the teachings of O'Shea in an

Itanium-based computer system in which it is the system abstraction layer firmware that performs the tasks O'Shea discloses.

With respect to claim 27, the rejection of claim 15 is incorporated. O'Shea is silent as whether the processor is an Itanium Processor Family chip, and the firmware is system abstraction layer firmware.

However, O'Shea further discloses that the firmware performs tasks related to setup, maintenance and testing, among others (see, for example, paragraph [0025], lines 9-11). Likewise, the SAL specification teaches that the system abstraction layer firmware of an Itanium Processor Family chip performs tasks related to initialization, configuration and testing, among others (see, for example, page 1-4, section 1.3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement O'Shea such that the processor is an Itanium Processor Family chip, and the firmware is system abstraction layer firmware, as the SAL specification suggests. One of ordinary skill in the art would have been motivated to provide the teachings of O'Shea in an Itanium-based computer system in which it is the system abstraction layer firmware that performs the tasks O'Shea discloses.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure (see the attached Notice of References Cited).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Yigdall whose telephone number is (571) 272-3707. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MY

Michael J. Yigdall
Examiner
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SUPERVISORY PATENT EXAMINER